

REMARKS

Claims 1-20 are pending in this application. By this Amendment, claims 6 and 16 have been amended. These amendments are being made to facilitate early allowance of the presently claimed subject matter. Applicants reserve the right to pursue the full scope of the subject matter of the original claims in a subsequent patent application that claims priority to the instant application. Reconsideration in view of the above amendments and following remarks is respectfully requested.

In the Office Action, claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Adetutu et al. (US Patent No. 6,902,969), hereinafter "Adetutu." Applicants respectfully submit that the claimed invention is allowable for the reasons stated below.

With respect to claim 1, for example, Applicants submit that Adetutu does not disclose, *inter alia*, "forming a conductive hard mask including at least one of a metal containing conductor and a metal silicide over the material [.]" Adetutu discloses forming a layer 117 over a layer 116 containing a first metal. (See FIG. 1; see also col. 2, lines 17-19.) Layer 117 of Adetutu, however, is "of a dielectric such as TEOS[.]" (Col. 2, lines 19-20). That is, layer 117 of Adetutu is not a conductive hard mask including at least one of a metal containing conductor and a metal silicide.

Applicants submit that no other layers of the Adetutu device are more relevant than layer 117 to be read as the conductive hard mask of the current invention. For example, the Office asserts that layer 118 (of a second metal such as tantalum silicon nitride) of Adetutu can be read as a conductive hard mask of the current invention. (Office Action at page 2). Applicants respectfully traverse this assertion because layer 118 of Adetutu is not a mask. (See FIGS. 5-7.)

Appl. No. 10/711,642

Reply to Office Action of 06/29/05

Page 7 of 10

As shown in figures 5-7, layer 118 of Adetutu covers both area 134 (under the layer 116) and area 136, and is included in both gate stacks 137 and 139. Adetutu does not use layer 118 as a mask to selectively remove any layer. In sharp contrast, the claimed invention “remove[s] the conductive hard mask from an area for a device having a second, different work function selective to the material ... and [leaves] the conductive hard mask for use in removing the material from the area[.]” (Claim 1). Adetutu does not remove layer 118 from an area for a device having a second, different work function (area 136 of Adetutu), and Adetutu does not use layer 118 in removing the first layer 116 from the area (area 136).

Adetutu mentions that “the metal thickness varies with the presence or absence of layer 118.” (Col. 3, lines 24-26). However, Adetutu never discloses that layer 118 is absent. As further evidence to this, figure 5 of Adetutu shows that layer 118 covers both area 134 (under the layer 116) and area 136, and figure 7 shows that layer 118 is included in both gate stacks 137 and 139. Moreover, Adetutu only mentions the effect of the metal thickness on the dry etch processing (see col. 3, lines 26-30), but does not disclose using “layer 118” as a hard mask in removing the first layer 116 from area 136. In view of the foregoing, Adetutu does not disclose forming a conductive hard mask including at least one of a metal containing conductor and a metal silicide over the material.

With further respect to claim 1, Applicants submit that Adetutu does not disclose, *inter alia*, “leaving the conductive hard mask for use in removing the material from the area and inclusion in the metal gate electrode.” (Emphasis added). Adetutu discloses using layer 117 “as an etch mask to pattern layer 116.” (Col. 2, lines 52-53). In Adetutu, however, layer 117 is then totally removed and is not included in the metal gate electrode. (See FIGS. 4-7.) In sharp

contrast, the claimed invention “[leaves] the conductive hard mask for use in ... inclusion in the metal gate electrode.” (Claim 1). Layer 118 of Adetutu also does not read on this feature because as discussed above, Adetutu does not leave layer 118 for use in removing layer 116 from area 136. In view of the foregoing, Adetutu does not anticipate the claimed invention.

The above arguments also apply to independent claims 6 and 16. For example, claims 6 and 16 include, *inter alia*, “depositing a conductive hard mask on the first metallic conductor including at least one of a metal containing conductor and a metal silicide” and “forming the gate electrode including the remaining portion of the conductive hard mask.” (Emphasis added). As discussed above, Adetutu does not disclose these features of claims 6 and 16.

The dependent claims are believed allowable for the same reasons stated above, as well as for their own additional features.

CONCLUSIONS

Applicants respectfully submit that the application is in condition for allowance. Should the Examiner believe that anything further is necessary to place the application in better condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



Spencer K. Warnick
Reg. No. 40,398

Date: 9/22/05

Hoffman, Warnick & D'Alessandro LLC
75 State Street, 14th Floor
Albany, New York 12207
(518) 449-0044
(518) 449-0047 (fax)